

1 VQE results Aer Estimator (No Shots)

(Full Hamiltonian)				Double Well	$\Lambda = 4$	COYBLA Max 10K Iterations			
Ansatz	Tolerance	Converged runs	Mean iter	VQE min E.	Δ_{min}	VQE median E.	Δ_{median}	Exact	Time
RA r1 rl	1e-01	100/100	43	9.1332e-01	6.7582e-03	1.0239e+00	1.1735e-01	9.0655987147e-01	00h 00m 14s
RA r1 rl	1e-02	100/100	148	9.0663e-01	6.6345e-05	9.1058e-01	4.0161e-03	-	00h 00m 42s
RA r1 rl	1e-03	100/100	283	9.0656e-01	7.6769e-07	9.2917e-01	2.2611e-02	-	00h 01m 24s
RA r1 rl	1e-04	100/100	423	9.0656e-01	6.398e-09	9.0656e-01	1.2705e-06	-	00h 02m 04s
RA r1 rl	1e-05	100/100	704	9.0656e-01	3.6733e-11	9.0656e-01	1.7078e-07	-	00h 04m 14s
RA r1 rl	1e-06	100/100	836	9.0656e-01	1.2751e-12	9.0656e-01	1.1241e-10	-	00h 04m 39s
RA r1 rl	1e-07	99/100	889	9.0656e-01	4.5519e-15	9.0656e-01	4.1267e-13	-	00h 05m 14s
RA r1 rl	1e-08	99/100	955	9.0656e-01	2.2204e-15	9.0656e-01	2.4625e-13	-	00h 04m 29s
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Table 1